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HEREDITY AND ENVIRONMENT: A REJOINDER.

In the course of the friendly controversies in which sociologists are sometimes so human as to indulge, it not infrequently happens that the point at issue, at first sharp and distinct, expands and elaborates itself until it becomes a phantom-like growth, perhaps vaguely imposing, but without much substance, and clothed mainly in misapprehensions as to the meaning of the terms employed by one or another of the disputants.

Something like this appears to have occurred in recent comment as to the alleged position of the anthropo-sociologists with reference to questions of heredity and environment. The point at issue between the school of investigators who labor under the above admittedly cumbrous designation, on the one hand, and Professor Ripley, on the other, has been mainly as to the relative importance as a sociological factor of the hereditary or racial composition of certain population groups as compared with the conditions of environment to which the groups are subject. By explicit definition the heredity that we emphasized was the heredity of congenital characters;* and the effects of environment that we deprecated were the immediate or direct effects upon the members of the present generation.† That Ripley's criticism and counter-argument were based upon substantially the same understanding of the two terms follows almost necessarily from the whole context and course of the discussion. The problem in this its original and tangible form calls for much further investigation, and perhaps for compromise towards the happy mean which may lie between the position of the two schools. But my present object is merely to restore the discussion to its better self by pointing out the extent to which, in Mr. Ripley's last instalment,‡ it has become the victim of variation—doubtless of “accidental variation”—through a

*Lapouge, *Les Selections sociales*, pp. 48, ff.; Ammon, *Die Gesellschaftsordnung*, §4; Closson, *Quarterly Journal of Economics*, x. p. 156.

† *Les Selections sociales*, pp. 81, ff.

‡ *Quarterly Journal of Economics*, May, 1900, pp. 426, ff.

radical change in the content now given to the terms "influences of environment" and "heredity."

The phrase, "effects of environment," may, in the absence of any qualification, be understood in either of two quite different senses. First, there are the immediate modifying effects upon the individual or upon the individuals of a given generation. Secondly, there are the indirect effects upon the race through selection; that is, through the increase of those best fitted and the elimination of those least fitted to the environmental conditions. These two significations of the phrase may often stand in the sharpest contrast. The immediate effect of alcohol is to make a proportion of any given generation more or less inebriate. Its selective or indirect effect may be (according to some authorities, is) to eliminate the individuals and family strains that are most susceptible to its abuse.* The direct influence of modern hygiene—which may for our present purpose be regarded as one factor in human environment—is to improve the average health of the present generation. Its selective influence, according to Drs. Haycraft, Schallmayer, Brinton, Kellogg, and others, is, by allowing the weaker to survive and propagate, to lower the average physique of future generations. The first result of monastic celibacy is, perhaps, an increase in religious fervor: its selective result is to eliminate the elements in the community most susceptible to religious feeling. The temporary effect of injudicious charity is to relieve the suffering of the defective classes: its selective effect is to stimulate the increase of these classes in succeeding generations. The obvious consequence of a somewhat severe climate is to produce hardship: its selective consequence is to breed a race capable of enduring hardship.

Evidently, then, the immediate effects and the selective effects of environment are not at all the same thing. Yet Mr. Ripley's present criticism appears absolutely to confuse the two; for, having in mind what the anthro-po-sociologists have said as to the relatively slight importance of modifying influences acting directly and *en masse*, he accuses us of mini-

*I do not wish to be understood as supporting this particular thesis, which has been sustained at great length by Dr. Archdall Reid. I employ it here simply for purposes of illustration.

mizing the force of selection,—the very thing that we have been trying to emphasize.

Our critic seems to imagine that, in asserting the significance of the racial factor, we regard any given race as a sort of *Ding-an-sich*, or at least as a kind of special creation independent of external conditions. In reality, like Professor Ripley himself and like probably all other anthropologists, we of course attribute racial differences among men to the influences of selection, in part purely environmental, in part social,—economic, military, sexual, and so on. Making allowance for the fact that “accidental” or unexplained variations may have offered in the various groups different kinds of human material for the play of selection, we may say roughly that race is the slowly formed product of past selection. But the race once formed has ordinarily considerable stability, even under the selective influence of a changed environment. If, according to a recently resurrected theory of the ultra-environmental school, the climate of the United States is tending to reduce the present population to the physical type of the Indians,* the process is at least somewhat gradual, so that the careful observer may still detect differences between the Gibson girl and the Apache squaw.

In view, then, of the extent to which race admittedly represents the stored-up and transmitted effects of past selection, largely environmental, which persist against immediate modifying effects, and in view, too, of the elaborate way in which the anthropo-sociologists have studied the formation especially of the race *Europæus* by climatic selection† and its subsequent selective modification by natural and social environment,‡ it is somewhat surprising to be told that we “refuse to accord any due recognition to the most potent factor in . . . selection; namely, environment.” It is we who, in emphasizing what some of our critics style “the vulgar theory of race,” really emphasize the selective effect of environment: it is Mr.

* The theory seems to be asserted seriously, in spite of the obvious consideration that nearly all the present factors in selection except climate (such as sexual preference, diet, protection from the weather, warfare, hygiene, standard of life) function wholly differently from the way they did among the aborigines.

† Lapouge, *L'Aryen*, pp. 47-186; *Les Selections sociales*, pp. 14, 15.

‡ *L'Aryen*, pp. 325-365, 406; *Les Selections sociales*, pp. 97, 147.

Ripley himself who tends somewhat to subordinate this to immediate modifying influences.

A somewhat similar lack of discrimination seems to be at the bottom of Professor Ripley's idea that our position in regard to heredity is inconsistent with that of Weismann and Wallace. These authors, he tells us, "have stood out rigidly for the all-sufficiency of selection in accounting for the phenomena of evolution. Consequently, they limit the potency of heredity to a corresponding degree." Now what Wallace, Weismann, and the Neo-Darwinians generally, as opposed to the Lamarckians, "limit," is the transmissibility of acquired, or somatic, characters. They and all biologists accept and insist upon the heredity of congenital characters. Indeed, without such heredity, selection would have no meaning. To say, for example, that selection is tending to reduce the proportion of Indians in the total population of the United States would be meaningless if the children of the whites and the children of the Indians were indistinguishable; that is, if heredity failed to work. Selection presupposes heredity. Heredity alone would tend to perpetuate all varieties of life: selection merely determines what varieties heredity shall be allowed to preserve.

The position of Lapouge and Ammon in this matter is in complete harmony with that of Weismann and Wallace, except that it is in some respects less dogmatic. All four authors accept the inheritance of congenital traits: all four reject the theory of the transmissibility of the effects of use and disuse. There is just about as much inconsistency as existed between the conductor who called the station and connections at one door of the car and the brakeman who called at the other door, "Same at this end!" It is therefore difficult to find anything in the premises that is "quite illogical" or even "rather anomalous," unless perhaps it be the position of the critic who holds that because we insist on the importance of the heredity of congenital characters we are in conflict with those who deny the inheritance of acquired characters.

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